



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Gabriel Nunez *et al.*  
Serial No.: 10/002,974  
Filed: 10/26/01  
Entitled: NOD2 Nucleic Acids and Proteins

Group No.: 1634  
Examiner: Goldberg

INFORMATION DISCLOSURE  
STATEMENT TRANSMITTAL

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

|   |   |
|---|---|
| CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8(a)(1)(i)(A)  |   |
| I hereby certify that this correspondence (along with any referred to as being attached or enclosed) is, on the date shown below, being deposited with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. |   |
| Dated: <u>September 12, 2003</u>  | By: <u>Mary Ellen Waite</u><br>Mary Ellen Waite |

Sir or Madam:

Enclosed please find an Information Disclosure Statement and Form PTO-1449, including copies of the references contained thereon, for filing in the U.S. Patent and Trademark Office.

A check for \$180.00 is also enclosed pursuant to 37 C.F.R. § 1.17(p) for filing this Information Disclosure Statement after three months as set forth in 37 C.F.R. § 1.97(c).

The Commissioner is hereby authorized to charge any additional fee or credit overpayment to our Deposit Account No. 08-1290. **An originally executed duplicate of this transmittal is enclosed for this purpose.**

Dated: September 12, 2003

Tanya A. Arenson  
Registration No. 47,391

09/16/2003 HBL/MSD 00000030 10002574

02 FC:1006

180.00 CP

MEDLEN & CARROLL, LLP  
101 Howard Street, Suite 350  
San Francisco, California 94105  
608/218-6900



UM/UC-06646  
September 12, 2003

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Nunez *et al.*

Serial No.: 10/002,974

Filed: 10/26/01

Entitled:

Group No.:

Examiner:

**NOD2 NUCLEIC ACIDS AND PROTEINS**

## INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**CERTIFICATE OF MAILING UNDER 37 CFR § 1.8(a)**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to the: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on **September 12, 2003**.

By:

  
Mary Ellen Waite

Sir or Madam:

The citations listed below, copies attached, may be material to the examination of the above-identified application, and are therefore submitted in compliance with the duty of disclosure defined in 37 C.F.R. §§ 1.56 and 1.97. The Examiner is requested to make these citations of official record in this application.

- The following publications were cited in the International Search reports of co-pending PCT Applications WO 02/44426 and WO 02/36773:
- WO 01/72822;
- WO 99/64576;



UM/UC-06646  
September 12, 2003

- WO 99/40102;
- WO 01/90156;
- Ogura et al., "A frameshift mutation in NOD2 associated with susceptibility to Crohn's disease," Nature Vol 411:603 [2001];
- Hugot et al., "Association of NOD2 leucine-rich repeat variants with susceptibility to Crohn's disease," Nature 411:6837 [2001];
- Inohara et al., "The NOD: A signaling module that regulates apoptosis and host defense against pathogens," Oncogene, 20:6473 [2001];
- Ogura et al., "Nod2, a Nod1/Apaf-1 family member that is restricted to monocytes and activates NF-kappa B," J. Biol. Chem. 276:4812 [2001];
- Database EMBL, Human NOD2 protein mRNA, Database accession number AF178930;
- Database EMBL, June 7, 1999 "Sequencing of human chromosome 16," Database accession no. AC007728;
- Database EMBL May 18, 1999 "Use of BAC end sequences from library RPCI-11 for sequence-ready map building," Database Accession No. AQ534686;
- Hugot et al., "Mapping of a susceptibility locus for Crohn's disease on chromosome 16," Nature 379:821 [1996];
- Miceli-Richard et al., "CARD15 mutations in Blau syndrome," Nature Genetics 29:19 [2001]; and
- Inohara et al., "Nods: A family of cytosolic proteins that regulate the host response to pathogens," Curr. Opin. Microbiol. 5:76 [2002].

The following printed publications are referred to in the body of the specification:

- Aderem and Ulevitch, Nature, 406:785-787 [2000];
- Philpott *et al.*, J. Immunol., 165:903-914 [2000];

- Leister and Katagiri, Plant J., 22:345-354 [2000];
- Hugot *et al.*, Nature 379:821 [1996];
- Chou *et al.*, Cell, 94:171 [1998];
- Kobe and Deisenhofer, Curr. Opin. Struct Biol., 5:409-416 [1995];
- Zou *et al.*, J. Bio. Chem. 274: 11549-11556 [1999];
- Schwandner *et al.*, J. Biol. Chem., 274: 17406-17409 [2000];
- Inohara *et al.*, J. Biol. Chem. 274: 14560-14568 [1999];
- Li *et al.*, Cell 91: 479-489 [1997];
- Snivasula *et al.*, Mol. Cell 1: 949-957 [1998];
- Hu *et al.*, J. Bio. Chem. 273: 33489-34494 [1998];
- Inohara *et al.*, J. Biol. Chem. 273: 12296-12300 [1998];
- McCarthy *et al.*, J. Bio. Chem. 273, 16968-16975 [1998];
- Parniske *et al.*, Cell 91: 821-832 [1997];
- Dixon *et al.*, Proc. Natl. Acad. Sci. U. S. A. 97: 8807-8814 [2000];
- Aliprantis *et al.*, Science, 285:736-739 [1999];
- Chow *et al.*, J. Biol. Chem., 274:10689-10692 [2000];
- Bertin *et al.*, J. Biol. Chem., 274:12955-12958;
- McCarthy *et al.*, J. Biol. Chem., 273:16968-16975;
- Thome *et al.*, Curr. Biol., 8:885-888 [1998];
- Inohara *et al.*, J. biol. Chem., 275:27823-27831 [2000];
- Shimada *et al.*, Int. Immunol., 11:1357-1362 [1999];
- Huang *et al.*, PNAS, 94:12829-12832 [1997];
- Medzhitov *et al.*, Mol. Cell, 2:253-258 [1998];
- Hsu *et al.*, Immunity, 4:387-396 [1996];
- Yamaoka *et al.*, Cell 93: 1231-1240 [1998];
- Hu *et al.*, EMBO J. 18: 3586-3595 [1999];
- Karin, J. Biol. Chem. 274: 27339-27342 [1999];



UM/UC-06646  
September 12, 2003

- Hofmann *et al.*, Trends Biochem. Sci. 22: 155-156 [1997];
- MacCorkle *et al.*, Proc. Nat. Acad. Sci. U. S. A. 95: 3655-3660 [1998];
- Yang *et al.*, Nature, 395:284-288 [1998];
- Zou *et al.*, Cell, 90:405-413 [1997];
- Poltorak *et al.*, Science, 282:2085 [1998];
- Takeuchi *et al.*, Immunity, 4:443 [1999];
- Rietschel *et al.*, Curr Top. Microbiol. Immunol., 216:39-81 [1997];

Applicants have become aware of the following printed publications which may be material to the examination of this application:

- Cho *et al.*, Inflammatory Bowel Diseases 3:186 [1997];
- Cho *et al.*, Proc. Natl. Acad. Sci. 95:7502 [1998];
- Brant *et al.*, Gastroenterology 115:1056 [1998];
- Cho *et al.*, Hum. Mol. Gent. 9:1425 [2000];
- Cavanaugh *et al.*, Ann. Hum. Gent. 62:291 [1998];
- Tysk *et al.*, Gut 29:990 [1988].

This Information Disclosure Statement under 37 C.F.R. §§ 1.56 and 1.97 is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that any one or more of these citations constitutes prior art.

Dated: September 12, 2003

---

Tanya A. Arenson  
Reg. No. 47,391  
MEDLEN & CARROLL, LLP  
101 Howard Street, Suite 350  
San Francisco, California 94105  
608 218-6900

|  |             |   |                  |  |                        |
|--|-------------|---|------------------|--|------------------------|
| FORM PTO-1449<br>(Modified)  |             | U.S. Department of Commerce<br>Patent and Trademark Office  |                  | Attorney Docket No.: UM/UC-06646       | Serial No.: 10/002,974 |
| <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b><br>(Use Several Sheets If Necessary)  |             |   |                  | Applicant: Gabriel Nunez <i>et al.</i> |                        |
|  |             |   |                  | Filing Date: 10/26/01                  | Group Art Unit:        |
| (37 CFR § 1.98(b))   |             |   |                  |  |                        |
| U.S. PATENT DOCUMENTS  |             |   |                  |  |                        |
| Examiner<br>Initials   | Cite<br>No. | Serial / Patent<br>Number   | Issue Date       | Applicant / Patentee                   | Class                  |
| FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS   |             |   |                  |  |                        |
|  |             | Document<br>Number  | Publication Date | Country / Patent Office                | Class                  |
|  |             |   |                  |  | Subclass               |
|  |             |   |                  |  | Translation            |
|  |             |   |                  |  | Yes                    |
|  |             |   |                  |  | No                     |
|  |             | WO 01/72822   | 4 October 01     | PCT                                    |                        |
|  | 2           | WO 99/64576   | 16 December 99   | PCT                                    |                        |
|  | 3           | WO 99/40102   | 12 August 99     | PCT                                    |                        |
|  | 4           | WO 01/90156   | 22 November 01   | PCT                                    |                        |
| OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)  |             |   |                  |  |                        |
|  | 5           | Ogura <i>et al.</i> , "A frameshift mutation in NOD2 associated with susceptibility to Crohn's disease," <i>Nature</i> Vol 411:603 [2001]                 |                  |  |                        |
|  | 6           | Hugot <i>et al.</i> , "Association of NOD2 leucine-rich repeat variants with susceptibility to Crohn's disease," <i>Nature</i> 411:6837 [2001]            |                  |  |                        |
|  | 7           | Inohara <i>et al.</i> , "The NOD: A signaling module that regulates apoptosis and host defense against pathogens," <i>Oncogene</i> , 20:6473 [2001]       |                  |  |                        |
|  | 8           | Ogura <i>et al.</i> , "Nod2, a Nod1/Apaf-1 family member that is restricted to monocytes and activates NF-kappa B," <i>J. Biol. Chem.</i> 276:4812 [2001] |                  |  |                        |
|  | 9           | Database EMBL, Human NOD2 protein mRNA, Database accession number AF178930  |                  |  |                        |
|  | 10          | Database EMBL, June 7, 1999 "Sequencing of human chromosome 16," Database accession no. AC007728  |                  |  |                        |
|  | 11          | Database EMBL May 18, 1999 "Use of BAC end sequences from library RPCI-11 for sequence-ready map building," Database Accession No. AQ534686               |                  |  |                        |
|  | 12          | Hugot <i>et al.</i> , "Mapping of a susceptibility locus for Crohn's disease on chromosome 16," <i>Nature</i> 379:821 [1996]                              |                  |  |                        |
|  | 13          | Miceli-Richard <i>et al.</i> , "CARD15 mutations in Blau syndrome," <i>Nature Genetics</i> 29:19 [2001]   |                  |  |                        |
|  | 14          | Inohara <i>et al.</i> , "Nods: A family of cytosolic proteins that regulate the host response to pathogens," <i>Curr. Opin. Microbiol.</i> 5:76 [2002]    |                  |  |                        |
|  | 15          | Aderem and Ulevitch, <i>Nature</i> , 406:785-787 [2000]   |                  |  |                        |
|  | 16          | Philpott <i>et al.</i> , <i>J. Immunol.</i> , 165:903-914 [2000]  |                  |  |                        |
|  | 17          | Leister and Katagiri, <i>Plant J.</i> , 22:345-354 [2000]   |                  |  |                        |
|  | 18          | Hugot <i>et al.</i> , <i>Nature</i> 379:821 [1996]  |                  |  |                        |
|  | 19          | Chou <i>et al.</i> , <i>Cell</i> , 94:171 [1998]  |                  |  |                        |
|  | 20          | Kobe and Deisenhofer, <i>Curr. Opin. Struct Biol.</i> , 5:409-416 [1995]  |                  |  |                        |
|  | 21          | Zou <i>et al.</i> , <i>J. Bio. Chem.</i> 274:11549-11556 [1999]   |                  |  |                        |
|  | 22          | Schwandner <i>et al.</i> , <i>J. Biol. Chem.</i> , 274:17406-17409 [2000]   |                  |  |                        |
|  | 23          | Inohara <i>et al.</i> , <i>J. Biol. Chem.</i> 274:14560-14568 [1999]  |                  |  |                        |
|  | 24          | Li <i>et al.</i> , <i>Cell</i> 91: 479-489 [1997]   |                  |  |                        |
|  | 25          | Snivasula <i>et al.</i> , <i>Mol. Cell</i> 1: 949-957 [1998]  |                  |  |                        |
|  | 26          | Hu <i>et al.</i> , <i>J. Bio. Chem.</i> 273: 33489-34494 [1998]   |                  |  |                        |
|  | 27          | Inohara <i>et al.</i> , <i>J. Biol. Chem.</i> 273: 12296-12300 [1998]   |                  |  |                        |
| Examiner:  |             |   |                  | Date Considered:                       |                        |
| <b>EXAMINER:</b> Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |             |   |                  |  |                        |

|   |   |  |  |  |                        |
|---|---|--|--|--|------------------------|
| FORM PTO-1449<br>(Modified)   |   | U.S. Department of Commerce<br>Patent and Trademark Office |  | Attorney Docket No.: UM/UC-06646       | Serial No.: 10/002,974 |
| <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b><br>(Use Several Sheets If Necessary)   |   |  |  | Applicant: Gabriel Nunez <i>et al.</i> |                        |
| (37 CFR § 1.98(b))  |   |  |  | Filing Date: 10/26/01                  | Group Art Unit:        |
| OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)   |   |  |  |  |                        |
| 28  | McCarthy <i>et al.</i> , J. Bio. Chem. 273, 16968-16975 [1998]                |  |  |  |                        |
| 29  | Parniske <i>et al.</i> , Cell 91: 821-832 [1997]                              |  |  |  |                        |
| 30  | Dixon <i>et al.</i> , Proc. Natl. Acad. Sci. U. S. A. 97: 8807-8814 [2000]    |  |  |  |                        |
| 31  | Aliprantis <i>et al.</i> , Science, 285:736-739 [1999]                        |  |  |  |                        |
| 32  | Chow <i>et al.</i> , J. Biol. Chem., 274:10689-10692 [2000]                   |  |  |  |                        |
| 33  | Bertin <i>et al.</i> , J. Biol. Chem., 274:12955-12958 (1999)                 |  |  |  |                        |
| 34  | Thome <i>et al.</i> , Curr. Biol., 8:885-888 [1998]                           |  |  |  |                        |
| 35  | Inohara <i>et al.</i> , J. Biol. Chem., 275:27823-27831 [2000]                |  |  |  |                        |
| 36  | Shimada <i>et al.</i> , Int. Immunol., 11:1357-1362 [1999]                    |  |  |  |                        |
| 37  | Huang <i>et al.</i> , PNAS, 94:12829-12832 [1997]                             |  |  |  |                        |
| 38  | Medzhitov <i>et al.</i> , Mol. Cell, 2:253-258 [1998]                         |  |  |  |                        |
| 39  | Hsu <i>et al.</i> , Immunity, 4:387-396 [1996]                                |  |  |  |                        |
| 40  | Yamaoka <i>et al.</i> , Cell 93: 1231-1240 [1998]                             |  |  |  |                        |
| 41  | Hu <i>et al.</i> , EMBO J. 18: 3586-3595 [1999]                               |  |  |  |                        |
| 42  | Karin, J. Biol. Chem. 274: 27339-27342 [1999]                                 |  |  |  |                        |
| 43  | Hofmann <i>et al.</i> , Trends Biochem. Sci. 22: 155-156 [1997]               |  |  |  |                        |
| 44  | MacCorkle <i>et al.</i> , Proc. Nat. Acad. Sci. U. S. A. 95: 3655-3660 [1998] |  |  |  |                        |
| 45  | Yang <i>et al.</i> , Nature, 395:284-288 [1998]                               |  |  |  |                        |
| 46  | Zou <i>et al.</i> , Cell, 90:405-413 [1997]                                   |  |  |  |                        |
| 47  | Poltorak <i>et al.</i> , Science, 282:2085 [1998]                             |  |  |  |                        |
| 48  | Takeuchi <i>et al.</i> , Immunity, 4:443 [1999]                               |  |  |  |                        |
| 49  | Rietschel <i>et al.</i> , Curr Top. Microbiol. Immunol., 216:39-81 [1997]     |  |  |  |                        |
| 50  | Cho <i>et al.</i> , Inflammatory Bowel Diseases 3:186 [1997]                  |  |  |  |                        |
| 51  | Cho <i>et al.</i> , Proc. Natl. Acad. Sci. 95:7502 [1998]                     |  |  |  |                        |
| 52  | Brant <i>et al.</i> , Gastroenterology 115:1056 [1998]                        |  |  |  |                        |
| 53  | Cho <i>et al.</i> , Hum. Mol. Gent. 9:1425 [2000]                             |  |  |  |                        |
| 54  | Cavanaugh <i>et al.</i> , Ann. Hum. Gent. 62:291 [1998]                       |  |  |  |                        |
| 55  | Tysk <i>et al.</i> , Gut 29:990 [1988]  |  |  |  |                        |
|   |   |  |  |  |                        |
| Examiner:   |   |  |  | Date Considered:                       |                        |
| <b>EXAMINER::</b> Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |   |  |  |  |                        |